In the claims

Please amend the claims pursuant to the provisions of 37 C.F.R. § 1.121, as follows:

1. (Currently Amended) A method for detecting a molecule which is labeled with a second harmonic-active label at an interface, which comprises:

   (a) contacting the labeled molecule with the interface; and

   (b) detecting light emitted from the interface using a surface selective technique so as to detect the labeled molecule in contact with the interface,

   wherein an unlabeled molecule at the interface is undetectable using the surface selective technique, and wherein the second harmonic-active label is hyperpolarizable and contributes to a net orientation at the interface.

2. (original) The method of claim 1, wherein the surface selective technique is second harmonic generation or sum-frequency generation.

3. (original) The method of claim 1, wherein the molecule is a protein, a nucleic acid, a lipid, or a carbohydrate.

4. (original) The method of claim 3, wherein the nucleic acid is a ribonucleic acid (RNA) or a deoxyribonucleic acid (DNA).

5. (original) The method of claim 1, wherein the molecule is a pollutant.

6. (original) The method of claim 1, wherein the molecule is on a surface of a nanoparticle or a polymer bead.

7. (previously presented) The method of claim 1, wherein the second harmonic-active label is bound to the molecule by a specific interaction or a non-specific interaction.

8. (original) The method of claim 7, wherein the specific interaction comprises a covalent bond or a hydrogen bond.

9. (original) The method of claim 7, wherein the non-specific interaction comprises an electrostatic interaction.

10. (previously presented) The method of claim 1, wherein the second harmonic-active label is specific for an amine group or a sulfhydryl group on the molecule.

11. (currently amended) The method of claim 1, wherein the second harmonic-active label comprises a plurality of individual second harmonic-active moieties which each have a nonlinear hyperpolarizability ~~susceptibility~~ and are bound together in a fixed and determinate orientation with respect to each other so as to increase the overall nonlinear hyperpolarizability ~~susceptibility~~ of the second harmonic-active label.

12. (original) The method of claim 1, wherein the interface is at a membrane, a liposome, a cell surface, a viral surface, a bacterial surface, or a biosensor.

13. (original) The method of claim 1, wherein the interface is a vapor-liquid interface, a liquid-liquid interface, a liquid-solid, or a solid-solid interface.

14. (original) The method of claim 13, wherein the vapor-liquid

interface is an air-water interface.

15. (original) The method of claim 13, wherein the liquid-liquid interface is an oil-water interface.

16. (original) The method of claim 13, wherein the liquid-solid interface is a water-glass interface or a benzene-SiO_2 interface.

17. (previously presented) The method of claim 1, wherein the molecule is a protein and the interface is at a receptor on a membrane.

18. (previously presented) The method of claim 1, wherein the molecule is on a viral surface and the interface is at a cell surface.

19. (previously presented) The method of claim 1, wherein the molecule is a protein and the interface is at a protein.

20. (previously presented) The method of claim 1, wherein the molecule is on a cell and the interface is at a cell surface.

21. (Currently Amended) A method for detecting a molecule in a medium, which comprises:

(a) labeling a surface with a first molecule which is labeled with a second harmonic-active label, <u>which is hyperpolarizable and contributes to a net orientation at an interface</u> wherein the first molecule specifically interacts with a second molecule to be detected,

(b) contacting the surface with a medium comprising the

second molecule, thereby creating an interface at the surface,

(c) detecting the first molecule at the interface by measuring a signal generated by the second harmonic-active label using a surface selective technique, wherein an unlabeled molecule at the interface is undetectable using the surface selective technique, and

(d) detecting a change in the signal when the second molecule interacts with the first molecule, thereby detecting the second molecule in the medium.

22. (original) The method of claim 21, wherein the surface is on a nanoparticle or a polymer bead.

23. (original) The method of claim 21, wherein the surface selective technique is second harmonic generation or sum-frequency generation.

24. (original) The method of claim 21, wherein the molecule is a pollutant or a charged species.

25. (original) The method of claim 24, wherein the pollutant is lead or polychlorinated biphenyl.

26. (original) The method of claim 24, wherein the charged species is a chloride ion.

27. (previously presented) The method of claim 21, wherein the interaction between the second harmonic-active labeled molecule and the molecule to be detected is an antibody-antigen interaction.

28. (previously presented) The method of claim 21, wherein the medium contains an amount of the molecule to be detected,

the change in the signal when the molecule interacts with the second harmonic-active labeled molecule is a quantitative change, and the amount of the molecule in the medium is determined from the change in the signal.

29-32. (Canceled)

33. (original) The method of claim 21, wherein the molecule to be detected is labeled with a second harmonic-active label.

34. (Currently Amended) A method for detecting an interaction between a first molecule which is labeled with a second harmonic-active label and a second molecule, which comprises:

(a) contacting the first molecule at an interface with a medium comprising the second molecule, wherein the first molecule specifically interacts with the second molecule; and

(b) detecting an interaction between the first molecule and the second molecule at the interface by measuring a signal generated by the second harmonic-active label using a surface selective technique, wherein an unlabeled molecule at the interface is undetectable using the surface selective technique, and wherein the second harmonic-active label is hyperpolarizable and contributes to a net orientation at the interface.

35. (original) The method of claim 34, wherein said second molecule is labeled with a second harmonic-active label.

36. (previously presented) The method of claim 21, wherein the first molecule or the second molecule is selected from the group consisting of a lipid, carbohydrate, protein and

nucleic acid.

37. (previously presented) The method of claim 34, wherein the first molecule or the second molecule is selected from the group consisting of a lipid, carbohydrate, protein and nucleic acid.

38. (previously presented) The method of claim 1, wherein the interface is a cell surface and the labeled molecule is prepared outside of the cell.